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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

HAMILTON, C

ART UNIT

PAPER NUMBER

1752

DATE MAILED: 08/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

# Office Action Summary

Application No.

09-547,395

Applicant(s)

Wang et al

Examiner

C. Hamilton

Group Art Unit

1752

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on 4-11-00

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

☒ Claim(s) 1-33 is/are pending in the application.

Of the above claim(s) 1-9, 25-33 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 10-24 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☒ Claim(s) 1-33 are subject to restriction or election requirement

## Application Papers

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some\* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other \_\_\_\_\_

Office Action Summary

### DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-4, drawn to a composition of matter differentiable by selective radiation illumination consisting essentially of a monomer and a dye, classified in class 430, subclass 281.1.
  - II. Claims 5-9, drawn to an initially homogeneous medium that is differentiated by selective exposure to radiation consisting essentially of a photopolymer, binder and a photoexcitable dye which when photoexcited will bind to the photopolymer, classified in class 430, subclass 286.1.
  - III. Claims 10-24, drawn to a medium suitably selectively recorded by radiation consisting essentially of a host matrix, a liquid monomer, a photoexcitable dye that will upon photoexcitation bind to the polymer to be formed from the liquid monomer, classified in class 430, subclass 285.1
  - IV. Claims 25-27, drawn to a method of radiatively recording information in a photosensitive medium, classified in class 430, subclass 269.
  - V. Claims 28-33, drawn to a writable radiation memory system comprising a first laser, a mask, a 4-f lens system, a volume optical recording medium consisting essentially of a host matrix containing a polymerized photopolymer doped with a dye that photoinitiates photopolymerization wherein said matrix is capable of further photopolymerization by the dye upon selective exposure of regions of the matrix, classified in class 430, subclass 270.1.
2. The inventions are distinct, each from the other because of the following reasons:

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a. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together.

Group I has a monomer which will when polymerized attach a dye. Group II has a photopolymer, i.e. an already polymerized monomer, that will attach a dye and further polymerize. Thus either Group I and II are mutually exclusive because of monomer for one and photopolymer for the other, or they are as follows in the next paragraph.

b. Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a photopolymerizable composition wherein overall cure will not lead to dye migration or to a photopolymer that will further polymerize but instead to a solid automobile part of chosen color and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated

by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.

103(a) of the other invention.

c. Inventions I and III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as the intermediate product a composition for overall cure to make automobile parts instead of the imaged material of Group III and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

d. Inventions II and IV are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in

another process such as overall irradiation to form automobile parts with immobilized color.

e. Inventions V and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because there is no requirement the dye bind to the photopolymer of Group II. The subcombination has separate utility such as molding colored automobile parts where no mask or imaging is required.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group s II - V, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I or III-V, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group I-II or IV-V, restriction for examination purposes as indicated is proper.

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6. Because these inventions are distinct for the reasons given above and the search required for Group IV is not required for Group I-III or V, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Group V is not required for Group s I-IV, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Mr. William C. Fuess on April 3, 2001 a provisional election was made with traverse to prosecute the invention of Group III, claims 10-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-4, 5-9 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 10-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language of claim 10 leaves unclear whether the medium is already recorded by radiation or only is capable of being "suitably selectively recorded by radiation" as set forth in the first line. The wording says it is recorded suitably, so this has been taken as the approach for examination. However, further on the medium consists essentially of (1) a host matrix, then (2) a liquid monomer "in which molecular mobilities are relatively higher, that is photopolymerized into a solid polymer in which molecular mobilities are relatively lower", (3) a dye which is "initially substantially homogeneously doped" in said monomer leaving unclear whether the dye is doped or not because of reference to "initially" as if a process and not a medium is being claimed. In line 9, reference to "wherein upon selective exposure of certain areas of the matrix by radiation" seems to say an image will be formed, but has not been formed as the preamble would lead a worker of ordinary skill in the art to believe. The last three lines of claim 10 refer to a "record of the selective radiation exposure" what appears to be what will happen on imagewise irradiation instead of what happened. This imaged media also has a polymer and no longer a dye homogeneously doped in a monomer. Thus, it is unclear what is being claimed here. Is the recorded image or the medium before recording?



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13. Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the photopolymer" in line 5. There is insufficient antecedent basis for this limitation in the claim. Claim 15 depends upon claim 14.

Claim 16 recites the limitation "the photopolymer" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 17 depends upon claim 16.

Claim 19 recites the limitation "the photopolymer" in line 2. There is insufficient antecedent basis for this limitation in the claim. Further, reference is made to the photopolymer having initially substantially uniformly doped with the dye. Again, there is a question what is being claimed the "initial" medium or the medium that has a photopolymerized monomer?

14. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The formation of a group from which to select in claim 18 is indefinite since the use of "consisting essentially of" does not limit the choice to only Rhodamine B and Bodipy Red. See particularly MPEP 2111.03 and 2173.05 (h), I and II.

15. Claims 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of these claims make reference "to write" as if the medium claimed is not already imaged. Claims 21 and 23 refer to reading as if data were either present or this is an intended use of the medium.

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16. Claims 10-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The medium of claim 10 requires the presence of a host matrix containing a liquid monomer that is photopolymerized into a solid polymer. On page 9 of the specification this host matrix is also defined as a host binder containing a photopolymer. Is the matrix the photopolymer? Is it a separate component "containing" the photopolymer as claims 14-15 would lead a worker in the art to believe as there is a requirement of a binder of cellulose acetate propionate? What is the host matrix is unclear in view of both the claim language and the specification at page 9. Thus, a worker in the art would not be able to understand what is meant by this term and thus practice the invention.

17. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 16, the photopolymer "consists essentially" of a monomer and crosslinker", an initiator and photosensitizer but no polymer. What is meant by photopolymer here if it refers to the polymer made from the monomer of claim 10?

18. The disclosure is objected to because of the following informalities: \*\*\*

On page 1, lines 10-12, the serial number of the application references needs to be added.

Appropriate correction is required.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sutherland et al (p. 303-313) teach a holographic grating where the dye migrates away from the polymerization site. Strickler et al (5,289,407) teach polymerizing to obtain a

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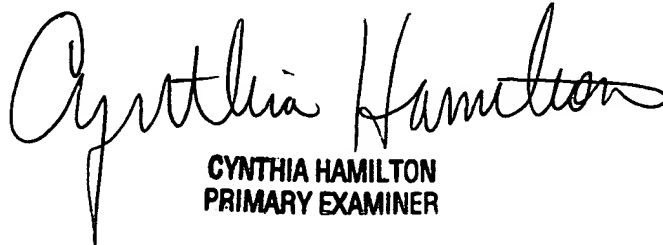
three dimensional multilayered recording media. Michl et al (4,864,537) teach forming recording media from polymer and dye combinations.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305- 0661.*

Cynthia Hamilton  
July 31, 2001



CYNTHIA HAMILTON  
PRIMARY EXAMINER